



# International Energy and Natural Resources

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## I. Developments in the Energy Sectors of the Baltic Republics

### A. BACKGROUND

Since regaining their independence from the former Soviet Union in the early 1990s, the Baltic Republics, including Estonia, Lithuania, and Latvia, have attempted to eliminate the vestiges of a command economy that was in place for approximately fifty years. The collapse of the U.S.S.R. wreaked havoc on the energy sectors in the Baltic region, as energy output plummeted and energy prices soared in response to the loss of Soviet markets, the primary users of power produced by the Baltic countries.<sup>1</sup> In recent years, the Baltic States have directed their attention to restructuring their respective energy sectors. To this end, the countries have enacted privatization and foreign investment laws. Traditional vertically integrated, state-owned monopolies in the electric and gas sectors gradually are becoming privately owned entities. The attempts at reform vary among the Republics, as is illustrated below.

### B. ESTONIA

Although the smallest of the Baltic Republics, Estonia is at the forefront in rehabilitating its energy sector.<sup>2</sup> Like the other Baltic nations, Estonia amended its legal framework to facilitate reform. Estonia followed the East German model of seeking out core investors to purchase state-owned companies, rather than a "mass privatization" approach.<sup>3</sup> The Estonian Privatization Agency administers privatization of state property through public auctions, direct sales, and sales by negotiation.<sup>4</sup> In addition to privatization laws, Estonia also has enacted favorable

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1. See Annual Report to the U.S. Agency for International Development Fiscal Year 1994, Utility Partnership Program, Central and Eastern Europe, U.S. Energy Ass'n, pp. 12, 24 and 26.

2. See Patrick Lannin, *Estonian Growth Beats Baltic Neighbours*, Reuter News Service (CIS and Eastern Europe) (July 8, 1996); *Baltic States: The Three Horse Race*, EUROMONEY CENTRAL EUROPEAN, June 1, 1996.

3. Tiit Presentation of the Manniskar, Advisor to the Estonia Ministry of Economy, U. S. Energy Ass'n, Membership Briefing, Washington, D.C. (May 23, 1996).

4. See 1996 Country Commercial Guide: Estonia, The Commercial Service, Central and Eastern Europe Business Information Center, U.S. Dep't Commerce.

foreign investment regulations that are liberal and nondiscriminatory to foreigners.<sup>5</sup> As a result, Estonia has achieved a successful level of substantial foreign direct investment.<sup>6</sup>

The Estonian Government adopted a two-phase process to reform its energy sector. The initial step requires restructuring of state-owned utilities prior to actual privatization.<sup>7</sup> For example, Eesti Energia, the major electric power monopoly, was virtually restructured into three business entities: production, transmission, and distribution.<sup>8</sup> Privatization efforts were subsequently undertaken.<sup>9</sup> The government, at least in the short term, remains unwilling, however, to sell a majority of any shares to investors due to the significant influence of Eesti Energia on the Estonian economy.<sup>10</sup> Thus, Eesti Energia will remain majority-owned by the government for some time with private industries holding minority interests. The Estonian Government has, nevertheless, permitted other state-owned utilities to become wholly privatized. Eesti Gaas, an internationally owned stock corporation handling gas import and distribution, recently completed its privatization process whereby the Estonian Government sold off its remaining thirty-nine percent stake in the company.<sup>11</sup>

Finally, Estonia has drafted a comprehensive law, the Energy Act, with an effective date of January 1, 1997, to implement regulatory reform.<sup>12</sup> The Act provides for unrestricted competition in a liberal free-market system for the power sector, endorsing freedom to contract between generators and users of power.<sup>13</sup> Transmission and distribution would be regulated, but only to the extent necessary to protect public interests.<sup>14</sup> The Act has set forth the following goals: (1) separation of power generation, transmission, and distribution; (2) creation of a regulatory body to oversee the energy market; (3) guarantee of third-party access to the grid; (4) transparency of pricing and accounting; and (5) encouragement of foreign private investment and technical assistance.<sup>15</sup>

### C. LITHUANIA

Overall, the pace of privatization of the energy sector in Lithuania has been slower than in Estonia. Although Lithuania has enacted privatization and foreign investment laws similar to those of the other Baltic States, Lithuania has failed to promote privatization and foreign investment to the degree seen in Estonia.<sup>16</sup> Lithuania generally has been reluctant to sell state-owned utilities to private investors.<sup>17</sup>

Lithuania, as a nation deficient in natural resources, is highly dependent on imports of fuels and raw materials from neighboring countries, including Russia. Lietuvos Dujos, the state-run

5. See Estonia Commercial Overview, The Commercial Service, Central and Eastern Europe Business Information Center, U.S. Dep't Commerce (January 1996).

6. 1996 Country Commercial Guide, *supra* note 4.

7. Manniskar, *supra* note 3.

8. *Id.*

9. *Id.*

10. *Id.*

11. See *Eesti Gaas Shows Profit*, East European Energy Report (April 1996).

12. Manniskar, *supra* note 3.

13. *Id.*

14. *Id.*

15. *Id.*

16. See *Baltic States: The Three Horse Race*, *supra* note 2.

17. See *Latvia: Four Bidders for Latvian Gas Company Stake*, Reuter News Service (CIS and Eastern Europe) (July 26, 1996).

gas import and distribution company, has a debtor relationship with Russia.<sup>18</sup> The Lithuanian Government has announced its intention to sell approximately thirty percent of Lietuvos Dujos to investors.<sup>19</sup> In the future, the government would like to privatize at least some of the electric generation, distribution, and transmission sectors.<sup>20</sup> So far, however, Lithuania's restructuring efforts have been confined to the privatization of ancillary energy services.<sup>21</sup>

The Butinge oil import terminal recently was privatized with the limitation that no single foreign investor would be able to purchase more than fifty percent of the shares in the planned terminal.<sup>22</sup> In another development, the Lithuanian Government has approved a plan to merge four of the country's leading oil companies, including a refinery, a terminal, a pipeline group and a petrol retailer, to form a new oil company, Lietuvos Nafta, that would be privatized via an international share offering in 1997.<sup>23</sup> In contrast to Estonia's approach favoring core investors, the government is prepared to limit its stake in the company to thirty-four percent, but it intends to remain the single, largest owner.<sup>24</sup> The government is seeking to establish broad-based ownership in Lietuvos Nafta. Lithuania hopes that the merger of these oil companies will increase the attractiveness of business in Lithuania to foreign investors.<sup>25</sup>

#### D. LATVIA

Latvia, like Lithuania, is poor in natural resources and heavily reliant on imports for the production of energy. Nevertheless, the country passed regulatory legislation in the form of an energy law in 1995 to increase efficiency, customer choice, and competition, as well as regulate licenses and tariffs.<sup>26</sup> Although Latvia is trying to encourage foreign direct investment, its laws contain various restrictions that are burdensome to potential foreign investors.<sup>27</sup> Thus, privatization of industry in Latvia has gone slowly, but steadily.

The Latvian Government is working to restructure its role with the vertically integrated electric monopoly, Latvenergo, from owner to regulator.<sup>28</sup> Privatization of Latvenergo, is planned whereby twenty-five to thirty-five percent of the company will be privately owned through a sale of new shares to investors.<sup>29</sup> The government decided, however, that prior to privatization, the enterprise ought to be transformed into a holding company.<sup>30</sup> On other fronts,

18. See *Gazprom and Lithuania Reach Debt Agreement*, East European Energy Report, April 1996; *Russia: Gazprom Resumes Full Supplies to Lithuania*, BBC Monitoring Service (CIS) (October 11, 1996).

19. See *Lithuania to Cut Stake in State Gas Company*, Reuter News Service (CIS and Eastern Europe) (July 24, 1996).

20. Viktoras Valentukevicius, Deputy Minister of Energy, Presentation at the U.S. Energy Ass'n, Membership Briefing, Washington, D.C. (May 23, 1993).

21. *Id.* Membership Briefing (May 23, 1996).

22. See *Lithuania: Press Digest*, Reuter News Service (CIS and Eastern Europe) (August 13, 1996).

23. See *Lithuanian National Oil Company Plan Approved*, East European Energy Report (July 26, 1996).

24. See *Lithuania to Cut Stake in Butinge Oil Terminal*, Reuter News Service (CIS and Eastern Europe) (May 30, 1996).

25. See *Lithuania Refinery Happy with Oil Firm Merger Plan*, Reuter News Service (CIS and Eastern Europe) (July 1, 1996).

26. Juris Ozolins, Counselor for the Latvian Minister of Economy, Presentation at the U.S. Energy Ass'n Membership Briefing (May 23, 1996).

27. See 1996 Country Commercial Guide: Latvia, The Commercial Service, Central and Eastern Europe Business Information Center, U.S. Dep't Commerce.

28. Ozolins, *supra* note 26.

29. See *Latvia Wants Energy Sales Applications by October*, Reuter News Service (CIS and Eastern Europe) (August 20, 1996).

30. See *Latvia: Press Digest*, Reuter News Service (CIS and Eastern Europe) (October 11, 1996).

Latvian Gas is close to completing its current privatization process. Gazprom of Russia and the German consortium Ruhrgas/Preussenelektra were awarded winning bids to purchase a total of thirty-three percent of the company.<sup>31</sup>

Finally, an on-going dispute over the maritime borders between Latvia and Lithuania has hampered efforts to develop oil resources in the Baltic Sea.<sup>32</sup> The disagreement between the two Republics has underscored the need of both countries to diversify their pool of imported resources, or ideally, to develop domestic energy resources within their respective countries. Hopefully, foreign investment and privatization will encourage these development efforts to the benefit of these Republics.

The Baltic Republics have made remarkable inroads in rehabilitating their respective energy sectors within a short time. Nevertheless, this remains a "work-in-progress."

## II. Independent Power Projects in India

In recent years, India has experienced a tremendous growth in demand for electric power. However, insufficient generation capacity failed to satisfy the growing demand, resulting in power shortages throughout the country.<sup>33</sup> In 1991, the Indian Government initiated an expansion program designed to increase generation capacity.<sup>34</sup> To this end, India opened its power generation sector to private developers that would obtain the capital required to undertake private power projects in India.<sup>35</sup> Private investors, including domestic and foreign, applauded the Indian government's liberalization of its power sector.<sup>36</sup> Several companies initiated negotiations with the federal and state governments for private, independent power projects (IPPs).<sup>37</sup> However, India's program to expand power generation has failed to fulfill its initial expectations.<sup>38</sup> As is discussed in this article, IPPs have encountered numerous bureaucratic and political hurdles making implementation of IPPs a frustrating endeavor for investors. Private investors seeking to penetrate the Indian independent power market should be prepared for a long-term commitment of financial, political, and human resources in order to reap anticipated benefits.

### A. GROWTH IN POWER DEMAND

In India, demand for power currently surpasses supply by ten to fifteen percent, with the shortfall on peaks at approximately thirty percent.<sup>39</sup> The Central Electricity Authority (CEA) estimates that the country will require approximately 142,000 MW of new capacity by 2007, against an expected capacity addition of about 60,000 MW, leaving a minimum shortfall of

31. See *Gazprom, Rubrgas Win Latvia Privatisation Bid*, Reuter News Service (CIS and Eastern Europe) (August 2, 1996).

32. See *Latvian PM Seeks Ratification of Amoco Deal*, Reuter News Service (CIS and Eastern Europe) (September 12, 1996); *Latvians Seek Piece of Baltic Action*, East European Energy Report (March 19, 1996).

33. Mark Newberry & Stephen Murray, *Reform of the Power Sector in India: No Push Button Solutions*, PETROLEUM ECONOMIST, February 1995.

34. Jayanta Sarkar, *Letter from India: Political Balkanization Continues to Poison IPP Environment*, Electrical World, November 1996.

35. Newberry, *supra* note 33.

36. Sarkar, *supra* note 34.

37. *Id.*

38. *Id.*

39. *Id.*

82,000 MW.<sup>40</sup> The Indian Government has indicated that it expects the private sector to provide the 60,000 MW of new capacity.<sup>41</sup>

## B. REFORM OF THE POWER SECTOR

Since the 1950s, development of the electric industry belonged exclusively to the State.<sup>42</sup> The Electricity Supply Act of 1948 (Act) established the CEA, whose responsibilities include controlling the development of major generation projects.<sup>43</sup> The Act also created State Electricity Boards (SEB) as vertically integrated monopolies.<sup>44</sup> India's policy of State control over power generation remained in effect until 1991 when the Indian Government acknowledged that an influx of private capital was necessary in order to facilitate funding of its capacity expansion program.<sup>45</sup> Financially strapped SEBs lacked the ability to attract the capital required to remedy India's dramatic power supply deficit.<sup>46</sup> India consequently opened up its national electricity sector to reform in 1991 by allowing private investors to participate in the power generation sector. As a result, the Act was amended in 1991 to permit private ownership of generating companies.<sup>47</sup> The new amendment provides that generating companies may enter into power purchase agreements (PPA) with SEBs to which the IPPs will sell their electric output.<sup>48</sup> The Indian Government also established various incentives to attract foreign investors, including a special capital gains tax rate of ten percent for international IPPs, versus twenty percent for domestic entities.<sup>49</sup>

## C. DUAL SYSTEM IN POWER SECTOR: ROLE OF FEDERAL AND STATE AUTHORITIES

The Indian Constitution stipulates that both federal and state authorities shall share jurisdiction over the power sector.<sup>50</sup> The regulatory structure reflects this system of dual jurisdiction by granting the central government and state governments roles in the power sector.<sup>51</sup> While the goal of the Act was to provide for coordinated development of the power sector, the dual system has frustrated implementation of IPPs in India.<sup>52</sup>

Although the Indian Government intends to promote competitive bidding in future independent power transactions, most IPPs have been pursued through negotiation.<sup>53</sup> Negotiations for an IPP generally involve a long and arduous process due to political maneuvering and the country's onerous bureaucracy. For each IPP, a developer must obtain numerous approvals from state and federal authorities, and negotiate a PPA and fuel supply agreement acceptable

40. *Japanese Institutions Agree to Fund Indian Private Power Sector Projects*, INDEPENDENT POWER REPORT, October 18, 1996.

41. *India Ends Environmental Requirement for IPP Projects of Less Than 250 MW*, UTILITY ENVIRONMENT REPORT, September 13, 1996.

42. Newberry, *supra* note 33.

43. *Id.*

44. *Id.*

45. *Id.*

46. *Id.*

47. *Id.*

48. *Id.*

49. Sarkar, *supra* note 34.

50. Newberry, *supra* note 33.

51. *Id.*

52. *Id.*

53. Joseph A. Anderson, *Financing Considerations in the Indian Power Market*, MODERN POWER SYSTEMS, August 1996.

to both authorities.<sup>54</sup> The federal CEA must clear any project whose cost exceeds \$285 million.<sup>55</sup> The developer also must obtain a sovereign guarantee of payment under the PPA.<sup>56</sup> Since most of the SEBs to whom the IPPs will sell their electric power production are in debt, developers must secure government guarantees to assure that electricity purchase obligations under long-term PPAs will be met.<sup>57</sup> When the ruling parties in the federal and state governments have differing ideologies, the processes described above become political issues.

#### D. TWO IPP EXPERIENCES: ENRON AND CMS

In 1991, the Indian authorities designated eight "fast track" IPPs for speedy clearances and sovereign guarantees that included Dabhol Power Co. (Dabhol) and CMS Generation Co.'s (CMS) project in the Andhra Pradesh State.<sup>58</sup> The ambitious pace failed to materialize, as is illustrated below.

##### 1. *Dabhol Power Co.*

The slow progress of IPPs in India is reflected in the infamous Dabhol case. The 2,450 MW oil and gas-fired project in the state of Maharashtra has faced a series of obstacles during power struggles between the central and state governments. Enron Development Corp. (Enron) negotiated an initial PPA with the state's former Congress Party-led government.<sup>59</sup> During the 1995 elections, the opposition parties turned the sensitive pricing of power matter under the PPA into an election issue.<sup>60</sup> When the Congress Party lost the election, the new state government, consisting of a coalition between two Hindu nationalist parties, Shiv Zena and the Baharatiya Janata Party, unilaterally decided to cancel the project.<sup>61</sup> The state government argued that the agreement had been negotiated in secret and lacked transparency, that project costs had been padded by Enron, and that the power sale tariffs were excessive.<sup>62</sup> The price of power charged by IPPs since has become a delicate commercial and political issue throughout negotiations with states that are concerned about the fairness of their deals.<sup>63</sup> The coalition government initiated legal action in Indian courts to cancel the project.<sup>64</sup> However, such legal actions failed, with the courts noting their disapproval of political actions that were jeopardizing projects clearly in the country's public interest.<sup>65</sup>

This series of events forced Enron to suspend work on Dabhol for over a year, from August 1995 to December 1996.<sup>66</sup> In an effort to save the project, Enron agreed to renegotiate the agreement. In January 1996, Enron agreed to cut Dabhol's cost, and to reduce tariff rates from 6.5 to 5.3 cents/kWh.<sup>67</sup> In July 1996, Enron signed a new PPA with the Maharashtra SEB.<sup>68</sup>

54. Sarkar, *supra* note 34.

55. *Id.*

56. *Id.*

57. Anderson, *supra* note 53.

58. Sarkar, *supra* note 34.

59. See *A Christmas Gift for Enron, and Some Costs to Consider*, POWER ASIA, December 9, 1996.

60. Anderson, *supra* note 53.

61. *Supra* note 59.

62. *Id.*

63. Anderson, *supra* note 53.

64. See *Legal Nightmare Looms as Maharashtra Axes Dabhol*, POWER ASIA, August 7, 1995.

65. *Id.*

66. *Supra* note 59.

67. Sarkar, *supra* note 34.

68. *Id.*

The payments for the SEB's power purchase obligations have been guaranteed by the Indian government.<sup>69</sup> Most observers viewed the state government's decision to declare the contract null and void as politically motivated.<sup>70</sup> The fact that the Dabhol agreement could not survive a change in government at state level is likely to discourage other foreign-sponsored IPPs in India.

## 2. CMS Generation Co.

CMS's 470 MW, gas and naphtha-fired power plant in Jegurupadu, Andhra Pradesh, became the first foreign-owned IPP to go on-line on August 6, 1996.<sup>71</sup> The plant should be fully operational by mid-1997.<sup>72</sup> The long-term PPA between CMS and the state government confirms that the IPP will supply its entire electric output to the Andhra Pradesh Electricity Board.<sup>73</sup> CMS claims that it owes its success to finding a local partner for the project, GVK Industries.<sup>74</sup> CMS argues that enlisting local partners provides a certain degree of protection to foreign-sponsored IPPs since authorities will be less likely to question the activities of domestic investors.<sup>75</sup> In spite of its recent success, CMS experienced several contractual setbacks for its "fast track" project.<sup>76</sup> Negotiations continued for four years due to political foot-dragging before the project was implemented.<sup>77</sup> The company repeatedly was forced to renegotiate its PPA to modify the tariff level at which the IPP would sell electricity to the SEB.<sup>78</sup>

Of the eight "fast track" projects only three have received all approvals necessary for implementation.<sup>79</sup> They include: Dabhol, CMS's project, and the Godavari Basin in Andhra Pradesh sponsored by Spectrum Technologies Ltd. (Spectrum).<sup>80</sup> Spectrum abandoned its efforts to obtain a sovereign guarantee from the central authorities after a substantial wait, and obtained one instead from Industrial Development Bank of India.<sup>81</sup> Since 1991, almost 190 project proposals have been received, including forty-six from foreign companies, for a total capacity of 75,260 MW, to be undertaken as negotiating transactions.<sup>82</sup> Approximately 149 of them have received some sort of follow-up treatment from the Indian authorities.<sup>83</sup> Eighty-five have been accorded "in-principle" approval.<sup>84</sup> Basic groundwork has started in fifteen cases.<sup>85</sup> Finally, close to fifteen additional proposals have advanced to the next stage of techno-economic ap-

69. *Id.*

70. Sarkar, *supra* note 34.

71. See Ray Pospisil, *CMS Finds New Identity and New Profits in Total Energy Approach*, ELECTRICAL WORLD, November 1996.

72. *Id.*

73. See *India Power Generation: CMS Project Lands Guarantee*, INTERNATIONAL GAS REPORT, September 13, 1996.

74. Pospisil, *supra* note 71.

75. *Id.*

76. See *CMS's McCormick Still Bullish on India Despite Political Setbacks for IPPs*, ELECTRIC UTILITY WEEK, July 1, 1996.

77. *Id.*

78. *Id.* See, also, *CMS Fires Salvo at Delbi Over Bureaucratic Delays*, POWER ASIA, June 26, 1996.

79. Sarkar, *supra* note 34.

80. *Id.*

81. *Id.*

82. *Id.*

83. *Id.*

84. *Id.*

85. *Id.*

proval.<sup>86</sup> However, prior experiences dictate that this review will be lengthy. Thus, a substantial number of private, independent power proposals remain in limbo.

#### E. CONCLUSION

The Indian Government has attempted to facilitate development of private IPPs by waiving certain clearances. Projects of 250 MW or less can proceed without approval from the CEA.<sup>87</sup> The federal government also has dropped its requirement for environmental clearance of such projects.<sup>88</sup> Currently, the federal authorities are considering shifting environmental clearance for projects of 250 MW or more to the individual states.<sup>89</sup> In addition, the Indian Government is in the process of developing a comprehensive energy policy which should establish clear guidelines to govern implementation of IPPs.<sup>90</sup> Pursuant to this policy, the authorities are drafting a model fuel supply agreement, based on international standards, to further facilitate IPPs.<sup>91</sup> Finally, as part of the policy, the government is considering the creation of independent regulatory entities at the federal and state levels in order to foster a "friendly" private investment environment.<sup>92</sup> Overall, however, political uncertainties have hampered completion of IPPs in India despite the country's liberalization of its power sector. One observer has recommended drawing up support across party lines for power projects to circumvent political twists.<sup>93</sup> Until political instabilities are resolved within India, IPPs will remain a "risky business" for private investors.

### III. Mexican Gas Opportunities in Power Generation

Electric power generation represents a significant future market for natural gas in Mexico. Several factors contribute to this nascent market opportunity, including (1) Mexico's need for additional electric generation; (2) legal and regulatory reforms aimed at increasing competition within the country's natural gas sector by permitting private investment in and development of a natural gas infrastructure; (3) clean air quality mandates requiring reduction of emissions from oil-burning plants and general migration to the use of cleaner fuels; and (4) Mexico's goal to ultimately privatize a significant portion of the electricity sector. These efforts have facilitated the development of several private, gas-fired power projects within Mexico, as will be discussed in this article. These projects have been the subject of sporadic, costly development efforts in the past several years. The ultimate tests of whether Mexico is committed to the full opening of the electricity and gas sectors of its economy lie ahead.

#### A. MEXICO'S NEED FOR ADDITIONAL ELECTRIC GENERATION

Mexico needs additional electric generation capacity. Power consumption has grown by an average annual five percent rate in the last ten years, compared with two percent in the United States.<sup>94</sup> The state-owned utility Comision Federal de Electricidad (CFE) estimates that the

86. *Id.*

87. *Supra* note 53.

88. *Id.*

89. *Id.*

90. *Transmission to Get Private Help*, POWER ASIA, September 30, 1996.

91. *Id.*

92. *Id.*

93. Anderson, *supra* note 53.

94. Chris Kraul, *Mexico Now Permits Foreign Investment in Energy*, AUSTIN AMERICAN STATESMAN, February 11, 1996.



country will need approximately 8,000 MW of new gas-fired, combined-cycle generating capacity by 2004, out of a total need for 12,000 MW of new capacity during the period, a thirty-five percent increase from current capacity.<sup>95</sup> By 2010, Mexico forecasts it must add a total of 30,000 MW of new generating facilities to meet projected increasing demand.<sup>96</sup>

Demand for additional gas-fired electric generating capacity is increasing due to Mexico's economic recovery from the debt crises of the 1980s, as well as the peso crisis of December 1994, growing industrialization and commercialization (particularly in the northern states), and expanded environmental regulations.

## B. REFORM OF GAS SECTOR: IMPACT ON ELECTRICITY SECTOR

The Mexican Government further committed itself to privatization of its energy sector when the United States and the International Monetary Fund required such efforts as part of the conditions of the \$50 billion loan packages extended to Mexico when it experienced an economic crisis in January 1995 due to a dramatic peso devaluation.<sup>97</sup> In response, the country has implemented various legal and regulatory reforms aimed at strengthening and opening Mexico's energy sector. Changes in Mexico's gas sector will affect significantly the development of Mexico's electricity sector.<sup>98</sup>

### 1. Five-Year Energy Plan

In February 1996, President Ernesto Zedillo launched a five-year energy plan: the Program for the Development and Restructuring of the Energy Sector 1995-2000 (Plan). The Plan is designed to (1) increase crude oil and natural gas production, (2) promote foreign investment, and (3) produce cleaner fuels in the future.<sup>99</sup> The Plan calls for the construction of new generation plants to prevent shortages after 1999.<sup>100</sup> A brief summary of the Plan is set forth below:

a. *Increase Oil and Gas Production*—The Plan notes that, in recent years, the energy sector in Mexico, including electricity generation, has suffered from underinvestment, which in turn has affected production levels.<sup>101</sup> Consequently, Mexico has acknowledged the need to use fuels other than oil, the predominant fuel, for electric power generation. Furthermore, increased production of natural gas will be necessary to respond to a growing demand for gas that will skyrocket in light of recently expanded environmental regulations discussed below.

b. *Encourage Private Investment*—The development of reserve levels and production capacity requires massive investments in exploration and production. Because of public sector financial restraints, private investment in power generation and natural gas transportation, distribution, and marketing will be encouraged by the Mexican Government.<sup>102</sup> The Plan notes that amendments to the Electric Power Public Utility Law in 1992 opened the door to private investment in activities previously reserved to the CFE, including independent power production, self-supply,

95. *Id.*; see also, *Mexico's 8,000 MW Gas-Fired Need May Help Fuel Gas Rush in Latin America*, INDEPENDENT POWER REPORT, May 31, 1996.

96. *Mexico Issues Solicitations for Five Private Power Projects, 1,500 MW*, INDEPENDENT POWER REPORT, May 17, 1996.

97. Diego Cevallos, *Mexico: Unions and Business Sector Uneasy on Privatization*, INTER PRESS SERVICE, February 13, 1996.

98. *Mexico's 8,000 MW Gas-Fired Need*, *supra* note 95.

99. See Program for the Development and Restructuring of the Energy Sector, 1995-2000, Ministry of Energy.

100. *Id.*

101. *Id.*

102. *Id.*

co-generation, and small production.<sup>103</sup> The Plan explicitly directs the CFE to promote power plant leasing and independent power production projects.<sup>104</sup> It sets forth the CFE's policy as follows: public investment resources will be concentrated in the areas of power transmission and distribution, while private investment will be promoted in generation facilities.<sup>105</sup> The Mexican Government intends to use the energy sector as a means to generate hard currency and labor, spur more investment, and improve the Mexican economy overall.<sup>106</sup>

### C. PROMOTE CLEANER FUELS

In the past, the state monopoly, Petroleos Mexicanos (PEMEX) supplied most of the fuel used by CFE in its generating facilities. PEMEX mainly supplied high-sulphur crude oil and liquid propane gas to power plants that caused significant environmental damage. Accordingly, the Plan indicates its strong support for the substitution program of CFE which requires transforming gas into the prime fuel of power plants by converting existing oil-burning power plants to gas and promoting gas to generate electric power.<sup>107</sup>

### 2. November 1995 Legislation

On November 8, 1995, legislation became effective allowing private investors, domestic and foreign, to participate in the transportation, storage, and distribution of natural gas within Mexico.<sup>108</sup> Prior to 1995, the oil and gas business was under exclusive state control through PEMEX, the government-owned oil and natural gas company. Liberalization of Mexico's gas sector has opened up opportunities for private investment in the country's energy sector, which should increase reserves and production.

### 3. March 1996 Regulations

On March 20, 1996, Mexico's Energy Regulatory Commission, Comision Reguladora de Energia (CRE),<sup>109</sup> issued regulations covering the pricing of natural gas by PEMEX, establishing a pricing regime for distributors and pipelines, and methodologies for developing tariffs for

103. *Id.* The Electric Power Public Utility Law was amended in 1992 to allow private investors to participate in Mexico's power generation sector under four different schemes, as: (1) an independent power producer selling its entire electric output to the CFE, (2) a co-generation project selling steam to industrial customers and power to the CFE, (3) a self-generator selling power to industrial users, or (4) a small producer selling power to small, rural communities. *Mexico's CFE Issues Solicitation for 440 MW Merida Power Plant*, INDEPENDENT POWER REPORT, June 3, 1994. For further discussion of the Electric Power Public Utility Law, see *infra* note 109.

104. *Supra* note 99.

105. *Id.*

106. See *Energy Sector Trends*, MEXICO BUSINESS MONTHLY, January 1, 1996.

107. See *supra* note 99.

108. See Regulatory Law of the Constitutional Article 27 on Petroleum and the Regulation of Natural Gas, November 8, 1995.

109. The CRE was created in 1993, pursuant to amendments to the Electric Power Public Utility Law. See *Mexico's CFE to Solicit Proposals for 300 MW Private Power Project*, ELECTRIC UTILITY WEEK, August 30, 1993. The CRE, loosely modeled after the U.S. Federal Energy Regulatory Commission, is charged with various responsibilities, including (1) supervising the application of new regulations, (2) guaranteeing "a level playing field" for all participants in the electricity sector, and (3) providing certainty in the relationship between the CFE and private power producers. To this end, the CRE has regulatory jurisdiction over the CFE. The amendments were part of reforms instituted by the government in order to promote private investment in Mexico's electricity sector in areas formerly within the exclusive control of the CFE, including the construction, operation and ownership of power plants. *Id.* For further discussion of the Electric Power Public Utility Law, see *supra* note 103.

regulated services.<sup>110</sup> The regulations were implemented to provide a clear and equitable regulatory framework for private investment in the natural gas sector. The rules also are indicative of Mexico's commitment to opening up its energy sector.

The new regulations should rapidly expand the demand for natural gas. The Ministry of Energy expects \$5 billion in investments in gas infrastructure over the next four years to meet an expected thirty-five percent increase in gas demand.<sup>111</sup> Liberalization of transportation, distribution, and storage of gas will promote gas as fuel to power electric-generating plants. By opening its gas-transmission infrastructure to private investors, Mexico hopes to jump-start its private-power market.<sup>112</sup>

### C. AIR QUALITY REGULATIONS

Mexico's escalating gas needs are driven in large part by recent air quality regulations that will take effect in 1998, significantly curtailing the burning of fuel oil in existing power plants.<sup>113</sup> The CRE established an official standard (NOM-086ECOL-1994) to use clean fuels.<sup>114</sup> The rules require 8,000 MW of new gas-fired capacity, as well as the conversion of all oil-burning power plants to gas by 1998 in order to reduce sulfur dioxide emissions.<sup>115</sup> Demand for natural gas will increase substantially as a result of these requirements.

Mexico intends to reduce fuel oil's share of generation from seventy percent in 1995 to thirty-six percent in 2004.<sup>116</sup> During the same period, gas-fired generation would grow from sixteen percent to forty-six percent,<sup>117</sup> resulting in an increase in consumption from 500 MMcf/day at present to 1.8 Bcf/day in 2004.<sup>118</sup>

### D. PRIVATE GAS-FIRED POWER PROJECTS

The changes and goals enumerated above have facilitated the development of various private power project proposals, as discussed below. The Mexican authorities estimate that twenty new private power plants totaling 9,000 MW are needed to cover projected annual increases in demand of 3.5 to 4.9 percent.<sup>119</sup> Some \$9.5 billion of private participation is required by this sector.<sup>120</sup> There is a high level of interest in gas-fired facilities, as reflected by the numerous statements of interest received by the CFE in response to various gas-fired project proposals.

#### 1. Privatization of Electric Sector

In January 1996, the Mexican Government outlined a program to privatize the country's electric sector.<sup>121</sup> The program envisages collaboration between the private and public sectors

110. See *Mexico Sets Formulas, Regulations for Natural Gas Liberalization Plan*, THE OIL DAILY, March 21, 1996; *Mexico Takes Major Step Toward Open Market*, GAS DAILY, March 21, 1996.

111. John Javetski & Jeffrey Reyser, *New Gas Finds, Pipelines Shaping Latin American IPP Environment*, ELECTRICAL WORLD, September 1996.

112. *Id.*

113. *Supra* note 106.

114. *Id.*

115. Javetski, *supra* note 111. See, also, *supra* note 95.

116. *Supra* note 95.

117. *Id.*

118. *Id.*

119. *Mexico's CFE to Initiate Bidding for Four Projects Solicited in May*, INDEPENDENT POWER REPORT, October 18, 1996. See also, Cevallos, *supra* note 97.

120. Cevallos, *supra* note 97.

121. See Georgina Tristan, *Entregan a la IP el Interruptor de la Generacion Electrica*, NEGOCIOS, 16 de enero de 1996.

to increase competition for producing the amount of capacity that the country requires.<sup>122</sup> Pursuant to the program, the construction and operation of new power plants will be handed over to the private sector.<sup>123</sup>

## 2. Private Power Projects

By the end of 1996, CFE intended to initiate the bidding process for five private power projects totaling 1,600 MW it released for solicitation in May.<sup>124</sup> Power production will be sold to state-owned CFE. Initial production from the proposed projects is expected in 1998, with all projects in commercial operation by 2000.<sup>125</sup> The Mexican Government is interested primarily in build-operate-transfer or build-lease-transfer agreements.<sup>126</sup> The projects include a 450-MW, gas-fired plant in Rosarito, Baja California; a 450-MW, gas-fired plant in Chihuahua City, Chihuahua; a 450-MW, gas-fired plant in Monterrey; a 100-MW geothermal plant, in Cerro Prieto, Baja California; and a 150-MW, gas-fired plant in Rosarito Beach.<sup>127</sup> The CFE received close to ninety expressions of interest in response to its May solicitation, including thirty-three from U.S. companies, twenty-three from Canadian firms, twenty from Mexican companies, and eleven from other countries.<sup>128</sup> The gas-fired power projects will require the construction of gas pipelines to supply gas to the plants. The tenders for such pipeline projects have not yet been made by the CFE. However, a variety of gas companies, including U.S. companies, have expressed interest in the projects.

a. *Merida III Power Plant*—CFE is continuing to encourage development of the 440-MW, gas-fired combined-cycle Merida III independent power project located on the Yucatan Peninsula. CFE wants construction to start in 1997 and commercial operation to be achieved by 2000.<sup>129</sup> CFE will sign a twenty-five-year contract for purchase of the power production.<sup>130</sup> The selected developer must finance, build, and operate the plant.<sup>131</sup>

In November 1996, the CFE received formal proposals from eighteen international companies, including U.S. firms, consisting of six consortia interested in the build-lease-transfer project.<sup>132</sup> Three Mexican companies also filed proposals.<sup>133</sup> The winning bidder will be announced in March 1997, one month after the announcement of the builder of the gas pipeline to serve the plant.<sup>134</sup>

The solicitation for Merida III was offered in conjunction with development of the pipeline needed to bring gas supplies to the project. The 330-mile, \$400 million pipeline, with a maximum

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122. *Id.*

123. *Id.*

124. *Supra* note 119.

125. *Id.*

126. *Id.*

127. *Id.*

128. *Id.*

129. *Eighteen International Firms File Formal Bids for 440 MW Merida III in Mexico*, INDEPENDENT POWER REPORT, November 15, 1996.

130. *See Mexico Relaunches Tender for Gas Pipeline to Supply Power Projects*, LATIN AMERICAN ENERGY ALERT, May 17, 1996.

131. *Mexico's CFE Sets New Bid Schedule for 440 MW Merida III IPP Project*, INDEPENDENT POWER REPORT, May 3, 1996.

132. *Supra* note 129.

133. *Id.*

134. *Supra* note 131.

volume of 272 Mcf/day, will run from the Tabasco state to the Yucatan.<sup>135</sup> It will supply Merida III and several additional power projects totaling 650 MW designated for the area, including the 150-MW Lerma, 168-MW Merida II, 45-MW Nichicom, 75-MW Valladolid Vapor, and a planned 212-MW Valladolid plant.<sup>136</sup>

b. *Samalayuca II Power Plant*—Samalayuca II is a proposed \$647 million, 700-MW combined-cycle, gas-fired power plant in Chihuahua near Ciudad Juarez. The three units totaling 700-MW are scheduled to come on-line in 1998.<sup>137</sup> The plant is expected to provide 13,000 MW during the next ten years.<sup>138</sup>

Samalayuca II represents the first privately funded power project in Mexico.<sup>139</sup> In May 1996, a consortium reached financial close on the plant and construction began a few months later.<sup>140</sup> Once all five units of the Samalayuca plants are operating, including two existing generating units with the ability to burn gas, 172,000 MMBtu/day could be transported to the plant.<sup>141</sup>

A consortium of various international companies, including U.S. and Mexican firms, reached agreement with CFE to build the plant.<sup>142</sup> CFE will lease and operate the plant for twenty years and then take ownership.<sup>143</sup> Each company holds an equity stake in the project.<sup>144</sup> The project is supported at the highest levels of the Mexican Government. President Zedillo, Secretary of Energy Jesus Reyes Heróles, Secretary of the Treasury Guillermo Ortiz Martínez, and CFE general director Rogelio Gasca Neri were present at the project's final signing ceremony.<sup>145</sup>

In the first contract of its type, El Paso Energy Co. (El Paso) recently signed an agreement with PEMEX forming a consortium to bid on the right to provide natural gas transportation from the United States to the plant, in response to the CFE's request for proposals.<sup>146</sup> The CFE was expected to announce the winning bid prior to the end of 1996.<sup>147</sup> If their bid is selected by the CFE, El Paso would construct a pipeline to the U.S.-Mexican border and PEMEX would add a line to bring gas to the plant.<sup>148</sup> El Paso intends to build thirty-six miles of lateral pipeline to deliver natural gas from U.S. producing areas to Samalayuca.<sup>149</sup>

## E. CONCLUSION

Opportunities for private investors within Mexico's gas sector are increasing due to legislative and regulatory reforms. Other pipeline and gas distribution system projects currently are being developed in Mexico to improve the country's gas infrastructure, generating substantial competi-

135. See *supra* note 129. See also, *Mexico/Pipelines: Yucatan Line Moves Closer*, INTERNATIONAL GAS REPORT, June 7, 1996; *Mexico Defines Next Zone for Gas Distribution System*, NATURAL GAS INTELLIGENCE, May 27, 1996.

136. See *supra* note 130.

137. *With Pemex as Partner, El Paso Aims to Capture Samalayuca Market*, INSIDE F.E.R.C.'S GAS MARKET REPORT, October 18, 1996.

138. Paula Dittrick, *Mexican Power Plant Among IDB Projects*, U.P.I., February 8, 1996.

139. *Financing Finally Closes on 700 MW Samalayuca II Gas Project in Mexico*, INDEPENDENT POWER REPORT, May 17, 1996.

140. *Id.*

141. *Supra* note 137.

142. *Supra* note 139.

143. *Id.*

144. *Id.*

145. *Id.*

146. *Supra* note 137.

147. *Id.*

148. *Id.*

149. *El Paso Energy to Build Samalayuca Pipeline*, Pipelines & Utilities Construction, OILDOM PUBLISHING, July 1996.

tion among foreign investors eager to enter Mexico's energy market. An improved gas infrastructure should facilitate the implementation of future gas-fired power projects. Moreover, gas is to become the primary fuel for power plants in accordance with expanded environmental requirements. Consequently, the evolution of Mexico's electricity sector is tied to changes in the gas sector. In addition to opening part of its gas sector to private investment, the Mexican Government has permitted private investors to participate in the electric power generation sector. These reform efforts should drive Mexico to further increase its gas-fired, electricity capacity generation in order to respond to growing electric power consumption, a trend expected to continue in the future.